

**INVESTIGATING EFL PRE-SERVICE TEACHERS’
PERCEPTIONS OF TPACK (TECHNOLOGICAL PEDAGOGICAL CONTENT
KNOWLEDGE) FOR THEIR TEACHING
(A SURVEY AMONG ENGLISH EDUCATION STUDENTS OF A
PRIVATE COLLEGE IN CIAMIS INDONESIA)**

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Abstract: This study focused on EFL pre-service teachers’ perceptions of TPACK (Technological Pedagogical Content Knowledge) for their teaching English education students at a private college in Ciamis, Indonesia. A survey study was used as a research design. The writer purposively selected 35 pre-service teachers (11 male and 24 female students) as the participants. The questionnaires were used as the research instrument in this study. This study used exploratory data analysis to analyze the data. The conclusions revealed that TK, TPK, and TPC were informed the highest percentages followed by Pedagogical Knowledge (PK), Content Knowledge (CK), Pedagogical Content Knowledge (PCK), and Technological Content Knowledge (TCK). It also revealed that they implemented their TPACK which mostly focuses on technological knowledge rather than pedagogical knowledge.

Keywords: EFL pre-service teachers; English education students perceptions; TPACK.

INTRODUCTION

The use of technology became popular in some developing countries because of its role in supporting teaching material learning. Moreover, in EFL contexts such as Indonesian where English is taught as a foreign language, technology must be implemented to enhance students’ language ability. Furthermore, the existence of technology such as digital computers or other features of technology in various schools cannot guarantee the effectiveness of its usage. It needs enough pedagogical knowledge on the integration of technology to provide students with the best educational technology. Likewise, in terms of classroom effectiveness, teachers ought to embrace

combined with pedagogy and content (Altun & Akyıldız, 2017, p. 468). In the other words, the technology should be balanced with the way the teacher integrates those tools.

In this case, massive technological growth becomes an issue for a teacher or EFL pre-service teacher. Similarly, it is important to assist teachers (both pre-service and in-service) to acquire and develop technical competence and the intention to integrate technology into teaching (Muhaimin, Habibi, Mukminin, Saudagar, Pratama, & Wahyuni, 2019, p. 269). Thus, it is getting important to empower pre-service teachers, who carry out new implementations, to use technology and embrace it in their teaching (Berber, 2015, p. 235). Due to the fact that pre-service teachers are considered digital natives, it was expected that they would also apply technology in their teaching naturally (Berber, 2015, p. 235). It means that EFL pre-service teachers should integrate technology skills into their pedagogical knowledge.

Nowadays, the Indonesian Ministry of Education and Culture announced the digital school program in 2025. It was said by the Cabinet Ministry of Education and Culture in the launching of the Digital School Program in Jakarta (2019) that Digital school is a new breakthrough in the educational world by empowering information and technology in all educational aspects (Surayya & Asrobi, 2020, p. 177). EFL pre-service teachers in Indonesia need to learn technology in their college course and apply it in their teaching. Pre-service teacher education is getting important because it provides the initial and primary source of teachers' knowledge because what they learned from their pre-service study would give influence on the way they teach as in-service teachers (Ciptaningrum, 2017, p. 12). In short, EFL pre-service teachers in Indonesia need to learn technology in their college course and apply it in their teaching.

However, pre-service teachers still found some difficulties in integrating the technology into their instruction. Likewise, pre-service teachers employ information technologies in their teaching in a very narrow manner and with little knowledge about technology integration and utilization (Inderawati, 2020, p. 165). Even though the access to hardware, software, and Internet connections keeps increasing in schools and colleges, many new teachers and pre-service teachers have less necessary knowledge or experience to embrace the technology into their instruction (Berber, 2015, p. 235). Besides that, many times Pre-service teachers are not well-prepared to plan for effective technology integration in their teaching (Redmond & Lock, 2019, p. 45). In short, integrating technology into instruction has become a pre-service teachers' problem in spite of the availability of facilities.

One form of adoption of technology integrated into teaching is TPACK (Technological Pedagogical Content Knowledge) proposed by Mishra and Koehler in 2006. Mishra and Koehler (2006) initiated the TPACK concept to give a theoretical framework for elaborating teachers' complex roles and competencies in the technology integration process (Altun, 2019, p. 250). TPACK is defined as the beneficial usage of technology in the teaching-learning process and teachers' enrichment of their pedagogical content knowledge with technology (Kozikoğlu & Babacan, 2019, p. 21). In short, the TPACK framework is defined as one model of framework that combines the three components in it including content, pedagogy, and technology knowledge.

TPACK is useful for the teachers to introduce technology and promote students' learning. Likewise, TPACK functions to provide the teachers' technological knowledge to produce better teaching by focusing on the connections between teachers' knowledge of content, pedagogy, and technology interact with one another (Surayya & Asrobi, 2020, p. 178). Furthermore, a well-organized TPACK may give teachers to get an improved understanding of how technology may promote students' learning (Aniq & Drahati, 2019, p. 96). In addition, teachers are ready to teach in innovative ways, such as in blended teaching where students apply digital devices as personal learning and productivity devices (Berber, 2015, p. 237). In brief, the use of TPACK can produce effective teaching and promote students' learning by focusing on the lines among teachers' knowledge of content, pedagogy, and technology.

Several studies have been conducted on EFL pre-service teachers' perceptions of TPACK at the university level based on an extensive review of the literature (Redmond & Lock, 2019;

Nguyen, Lee, and Tan, 2019; and Inderawati, 2020). In general, it is interesting to note that their studies focused on pre-service teachers' TPACK at the university level. However, their studies focused on a survey study and a mixed-method study using an online survey, interviews, students' reflective journals, and questionnaires. They also do not focus on a survey study using the questionnaires. These previous explanation makes the writer interested in investigating English Education students as pre-service English teachers in one of the private colleges in the Ciamis Regency.

METHOD

The qualitative method was used in this study through the use of a survey design. As suggested by Cohen, et al. (2018, p. 335). In determining the sample, the writer applied purposive sampling through the use of specified criteria e.g., psychological characteristics, proficiency or achievement levels, gender, and first language as proposed by Phakiti (2014, p. 150). However, the criterion used to select the sample in this research was their proficiency in English teaching. Therefore, the writer purposively selected 35 pre-service teachers (11 male and 24 female students) as the sample of the research.

The writer constructed the research instrument consisting of the questionnaires. The type of questionnaires was in form of closed-ended questions to limit their answers responding to the questionnaires. In line with this, closed questions were useful in that they could generate frequencies of response amenable to statistical treatment and analysis as described by Cohen, et al. (2018, p. 476). Meanwhile, the responses in the questionnaires were in form of Likert scales that there were a series of statements in which each statement could be answered by five categories namely "Strongly Agree", "Agree", "Neither Agree nor Disagree", "Neutral", "Disagree", and "Strongly Disagree" responses as suggested by Cohen, et al. (2018, p. 481) and Phakiti (2014, p. 122).

The questionnaires consisted of 26 statements which were adapted from Muhaimin, et al. (2019, pp. 274-275). Exploratory data analysis was used by the writer to analyze the questionnaires. The type of exploratory data analysis used in this research was frequency and percentage tables which were simpler than the others. In line with this, at a simple level, the researcher could present data in terms of frequencies and percentage which was adopted from Cohen, et al. (2018, p. 757). Subsequently, in calculating the percentage, the writer used the percentage formula which was adapted from Cohen, et al. (2018, p. 755) as follows:

$$\text{Percentage} = \frac{\text{number of X}}{\text{total}} \times 100$$

(Cohen, et al. 2018, p. 755)

FINDINGS AND DISCUSSION

The present study employed a set of questionnaires as primary data. Then, the questionnaire data were analyzed using exploratory data analysis to answer the following research questions: 1) EFL Pre-Service Teachers' Perceptions on TPACK for Their Teaching; and 2) "How do EFL pre-service teachers implement TPACK (Technological Pedagogical Content Knowledge) for their teaching?" The result of the questionnaire data will be explain in the following parts:

EFL Pre-Service Teachers' Perceptions on TPACK for Their Teaching

As stated in the previously, the writer analyzed the questionnaires by using exploratory data analysis as adapted from Cohen, et al. (2018, p. 754). Moreover, the results of the questionnaires from the first to the twenty-sixth statements were analyzed and correlated with the theories to answer the first research question. Therefore, the results of data analysis could reveal EFL pre-service teachers' perceptions of TPACK for their teaching.

After analyzing the EFL pre-service teachers' responses from the first to the fifteenth statements, the writer also collected and described the percentages in every statement as shown at the following Figure 1:

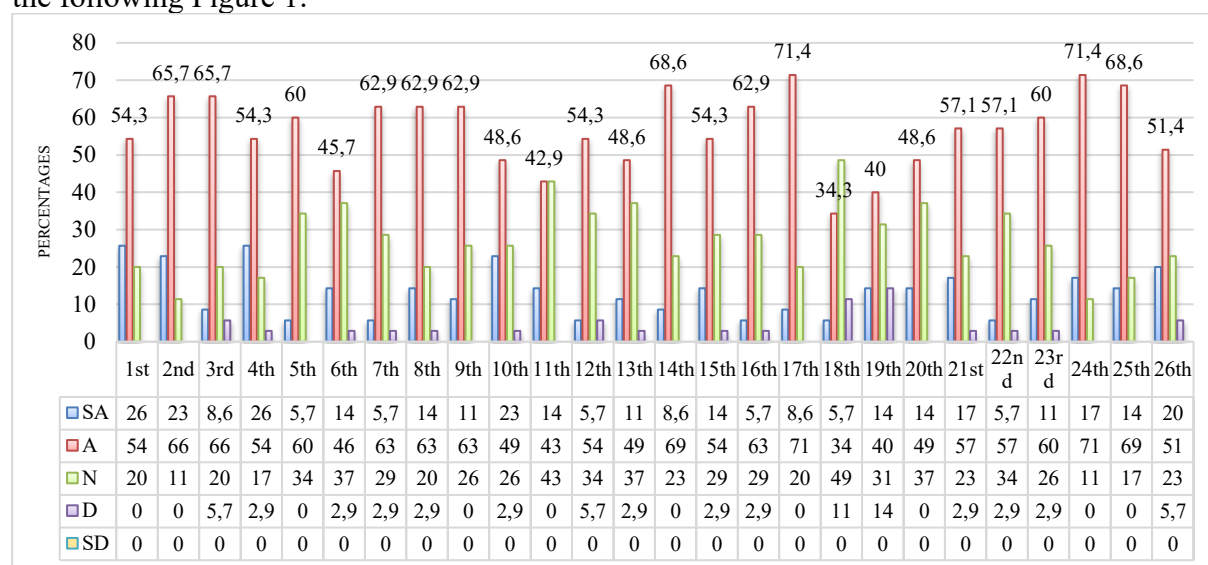


Figure 1 EFL pre-service teachers' responses to every statement

Based on Figure 1, it was found that there are several EFL pre-service teachers' perceptions of their TPACK for their teaching:

Firstly, in the domain of TK, they claimed that they had the technical skills to use the internet and computers effectively (54.3%), learned technology easily (65.7%), understand how to solve technical problems when using technology (65.7%), and kept up with popular new technologies (54.3%).

Secondly, in the domain of PK, they claimed that they were able to stretch their students' thinking by creating challenging tasks for them (60%), guiding their students to adopt appropriate learning strategies (45.7%), helping their students to monitor their learning (62.9%), helping their students to review on their learning strategies (62.9%), planning group activities for their students (62.9%), and guiding their students to have an effective discussion in the group work (48.6%).

Thirdly, in the domain of CK, they claimed that they had sufficient knowledge of English (42.9%), could think about the content of English like a subject matter expert (54.3%), and were able to develop a deeper understanding of the content of English (48.6%).

Fourthly, in the domain of PK, they claimed that they were able to use technology to introduce their students to real-world scenarios (68.6%), to facilitate their students to access technology to search for more information on their own (54.3%), to facilitate their students to access technology to manage and monitor their learning (62.9%), and to facilitate their students to collaborate using technology (71.4%).

Fifthly, in the domain of PCK, they claimed that without using technology, they could address the common misconceptions their students had about English (48.6%) and could help their students to understand the content knowledge of English in various ways (40%).

Sixthly, in the domain of TCK, they claimed that they could use the software that was created specifically for English (48.6%), understand the technologies that they need to use for research the content of English (57.1%), and use appropriate technologies e.g., multimedia resources, simulation to embody the content of English (57.1%).

Seventhly, in the domain of TPC, they argued that they are able to teach lessons that appropriately integrate English, technologies, and teaching approaches (60%), to select technologies for their classroom (71.4%), and to use strategies that combined English, technologies, and teaching approaches in their online coursework (68.6%), and to provide

leadership in helping others to organize the use of English, technologies, and teaching approaches in their school (51.4%).

Thus, the findings revealed that EFL pre-service teachers had a good perception of their TPACK for their teaching. However, they rated their domains of technological higher concerning TK, TPK, and TPC than those domains of knowledge concerned with knowledge, such as PK, CK, PCK, and TCK. The findings were also in line with the findings of the study carried out by Bas (2018, p. 54) who found that the Turkish in-service teachers have a medium level of perceptions in TK, PK, CK, TPK, PCK, and TPC sub-dimensions, while they have a low level of perceptions in TCK sub-dimension. In fact, the percentage of technological domains is more than 50% for each statement.

EFL Pre-Service Teachers' Implementation on TPACK (Technological Pedagogical Content Knowledge) for Their Teaching

The second research question that the writer formulated was as follows: "How do EFL pre-service teachers implement TPACK (Technological Pedagogical Content Knowledge) for their teaching?" As stated in the previously, the writer analyzed the questionnaires by using exploratory data analysis as adapted from Cohen, et al. (2018, p. 754). Moreover, the results of the questionnaires from the first to the twenty-sixth statements were analyzed and correlated with the theories. Therefore, the results of the data analysis could reveal how EFL pre-service teachers implemented TPACK (Technological Pedagogical Content Knowledge) for their teaching as given in the following discussion:

Firstly, TK was implemented by using the internet and computers effectively, learning technology easily, solving technical problems when using technology, and keeping up with popular new technologies. In line with this finding, the study conducted by Nguyen, Lee, and Tan (2019) found that the pre-service teachers' reflections showed a high percentage of TK.

Secondly, PK was implemented by stretching their students' thinking by setting challenging tasks for them, guiding their students to apply suitable learning strategies, assisting their students to manage their learning, assisting their students to review their learning strategies, and managing group activities for their students, and guiding their students to the effective discussion in group work. This finding is in line with the study conducted by Berber (2015) who reported that PK contributed significantly to pre-service teachers' TPACK development.

Thirdly, CK was implemented by having sufficient knowledge of English, thinking about the content of English like a subject matter expert, and developing a deeper understanding of the content of English. This finding is in line with the study conducted by Aniq and Drajadi (2019) which found that more EFL teachers rated their domain knowledge higher concerning CK.

Fourthly, TPK was implemented by using technology to introduce their students to real-world scenarios, facilitating their students to use technology, to find more information on their own, to plan and monitor their learning, and collaborate using technology. This finding links to the study conducted by Nguyen, Lee, and Tan (2019) who found that the pre-service teachers' reflections showed a high percentage of TPK.

Fifthly, PCK was implemented by addressing the common misconceptions their students had about English and helping their students to understand the content knowledge of English in various ways without using technology. In line with this finding, the study conducted by Valtonen (2019) indicates teacher education provides strong support for the development of pre-service teachers' pedagogical thinking in PCK.

Sixthly, TCK was implemented by using the software that was created specifically for English, knowing about the technologies that they had to use for research the content of English, and using appropriate technologies to represent the content of English. The finding is contradictory to the study conducted by Bas (2018) which indicated that the Turkish in-service teachers have a low level of perception in the TCK sub-dimension.

Seventhly, TPC was implemented by teaching lessons appropriately, selecting technologies to use in their classroom, using strategies that they learned about in their coursework in their online class, and providing leadership in helping others to coordinate the use of English, technologies, and teaching approaches in their school. In line with this finding, the study conducted by Redmond and Lock (2019, p. 51) revealed that the pre-service teachers had a positive perception of the TPACK components.

What are the implications?

This study investigated EFL pre-service teachers' perceptions of TPACK for their teaching to English education students at a private college in Ciamis, Indonesia. In this regard, the findings showed that they gave their positive perceptions of TPACK. However, it was found that TK, TPK, and TPC were informed as the highest percentages followed by PK, CK, PCK, and TCK. The findings were also related to the findings of the study carried out by Bas (2018, p. 54) who found that the Turkish in-service teachers have a moderate level of perceptions in TK, PK, CK, TPK, PCK, and TPC sub-dimensions, while they belong to a low level of perception in TCK sub-dimension.

In addition, the findings also showed that all seven domains of TPACK were implemented by EFL pre-service teachers of a private college in Ciamis, Indonesia. However, they implemented their TPACK with more focus on technological knowledge rather than pedagogical knowledge. The findings were also similar to the findings of the study carried out by Kozikoğlu and Babacan (2019) who claimed that Turkish EFL teachers had high level of TPACK skills and a good manner towards technology.

This present study was also supported by the previous study carried out by Redmond and Lock (2019) who showed that the pre-service teachers showed a positive attitude toward the TPACK components as part of the teaching and learning. In line with the previous study carried out by Redmond and Lock (2019), the findings of this present study also indicated that EFL pre-service teachers gave their positive perceptions of TPACK.

Furthermore, this present study was also enriched by the previous study carried out by Nguyen, Lee, and Tan (2019) who found that the pre-service teachers' reflections showed a high percentage of TK, TPK, PK, and TPACK, those of CK, TCK, PCK were rather constrained. Similar to the previous study carried out by Nguyen, Lee, and Tan (2019), the findings of this present study also indicated that TK, TPK, and TPC were informed as of the highest percentages from EFL pre-service teachers followed by PK, CK, PCK, and TCK.

In addition, this present study was also acknowledged by the previous study carried out by Inderawati (2020) who indicated that the students at Lampung University consider that they can combine technology both in the content and pedagogical subjects in English learning. Similar to the previous study carried out by Inderawati (2020), the findings of this present study also indicated that all seven domains of TPACK which covered content, pedagogy, and technology knowledge were implemented by EFL pre-service teachers of a private college in Ciamis, Indonesia.

CONCLUSIONS

This current research has investigated EFL pre-service teachers' perceptions of TPACK for their teaching. The results of data analysis emerged two conclusions to answer the research questions. The first conclusion revealed that EFL pre-service teachers perceived positively seven domains of TPACK for their teaching. However, they rated their domains of technological higher concerning TK, TPK, and TPC rather than those domains of knowledge concerned with knowledge, such as PK, CK, PCK, and TCK. The second conclusion revealed that EFL pre-service teachers have implemented seven domains of TPACK for their teaching. However, they implemented their TPACK which mostly focuses on technological knowledge rather than pedagogical knowledge.

Based on the conclusions, the lecturers are expected to present a deeper explanation of the theories about TPACK in teaching English to college students or EFL pre-service teachers. Besides, EFL pre-service teachers at English education students of a private college in Ciamis are expected to improve their skills and strategies in teaching English by implementing TPACK. Finally, the next researchers are expected to find out EFL pre-service teachers and the students' improvement and difficulties on TPACK for their teaching.

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